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18 OCT 1971

John

and

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15 OCT 1971

MEMORANDUM FOR: Director of Special Activities
ATTENTION: Deputy for Materiel
SUBJECT: Evaluation of .5 Mil Tape

1. HASC/AND has conducted experiments on the 3M Type 990, .5 mil instrumentation tape within their capabilities. This included handling, cross-talk, and tape stretching but did not include drop-out measurement or response curves. There should be operational flights performed at detachment G and these tapes returned and played back on the ground stations located in HASC.

2. The sample reel contained 14,400 feet of tape, an increase in footage of 5,200 feet over the Type 888 now in use. This additional footage represents a 35 minute increase with a high speed recording time of 30 ips.

a. Cross-talk: With the same record level used for both types of tapes, the following data was derived:

NEW TAPE NO. 990 .5 Mil

No. 888 1.0 Mil

Cross-talk Odd Tracks

Cross-talk Odd Tracks

MDCT* occurred at 3.8V

MDCT* occurred at 10V

NRO review(s) completed.

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Cross-talk Even Tracks

MDCT* occurred at 4V

Cross-talk Even Tracks

MDCT* occurred at 10V

Cross-talk Odd to Even Tracks

MDCT* occurred at 7V

Cross-talk Odd to Even Tracks

MDCT* occurred at 20V

*MDCT: Minimum Discernible Cross-talk

The term cross-talk may be a misnomer. The difference noted may have been caused by a change in the transfer characteristics of the 990 tape.

b. Tape Stretching: Because of the thickness of the material, and an increase in elasticity, the 990 tape is prone to stretch considerably more than the Type 888 tape now in use and only field use will indicate if this is excessive.

3. This tape should be handled with extreme care during operations. Recorders used for operational flights should be checked for inconsistencies in the tape transport mechanisms to insure proper tape passage.

4. The results of the tests indicate that there may be an increase in cross-talk and in handling problems over the Type 888 presently in use. However, the increased recording time is significant and for this reason it is recommended that the tests being performed at [] be reviewed in HASC and all facets of the problem be examined and a combined OSA/OEL decision be reached on the utilization of Type 990 vice 888.

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/s/ John N. McMahon

JOHN N. McMAHON
Director of ELINT
DD/S&T

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